

Statement of Basis - Narrative
NSR Permit

Company: Intel Corporation
Facility: Intel - Rio Rancho Facility
Permit No. 0325M9R19
Tempo/IDEA ID No.: 1103 - PRN20080004
Permit Writer: Jay Stimmel

Fee Tracking

Tracking	NSR tracking entries completed: <input type="checkbox"/> Yes <input type="checkbox"/> No
	NSR tracking page attached to front cover of permit folder: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Paid Invoice Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Balance Due Invoice Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Invoice Comments:

Permit Review	Date to Enforcement: TBD	Inspector Reviewing: Robert Samaniego
	Date Enf. Review Completed: TBD	Date of Reply: TBD
	Date to Applicant: TBD	Date of Reply: TBD
	Date of Comments from EPA: NA	Date to EPA: TBD
	Date to Supervisor: TBD	

1.0 Plant Process Description:

The function of the facility is to use silicon wafers to manufacture semi-conductor chips for use in the computer industry. The facility consists of buildings in which chips are manufactured (fabrication facilities, or fabs), buildings containing the facility's natural gas fired boilers, control equipment, laboratories, and offices.

2.0 Description of this Modification:

This is a technical permit revision for the installation and operation of an ammonia treatment system. Upcoming process changes will require Intel to remove ammonia from wastewater to meet discharge limits imposed by the Albuquerque Bernalillo County Water Utility Authority. The treatment system will be located outdoors on the northwest corner of the Central Utilities Building. The treatment process involves stripping ammonia from the wastewater and sending the air stream to a catalytic oxidizer. The catalytic oxidizer burns natural gas and generates combustion emissions as well as additional emissions of nitrogen oxides (NOx) from the destruction of the ammonia. This revision will not change the maximum emissions from the facility.

The influent liquid ammonia solution is pH adjusted to optimize stripper efficiency. The system is designed to process 90 pounds of ammonia per hour. Ammonia is stripped from the wastewater and sent to the catalytic oxidizer where it is heated to 572°F (300°C). The catalytic oxidizer unit consists of a 3.0 MMBtu/hr natural gas burner, an ammonia

catalyst bed, and a NOx catalyst bed. Approximately 81% of this air stream will be sent over the ammonia catalyst bed and the remaining air stream will be used as sparge air for the NOx catalyst bed. The catalyst beds are a ceramic material coated with platinum and palladium. The manufacturer estimates that 80% of the ammonia will be converted to nitrogen (N2) and 20% to NOx in the ammonia catalyst bed. It is estimated that of the 20% that is converted to NOx, 80% will be converted to nitric oxide (NO) and 20% to nitrogen dioxide (NO2). This air stream is then sent over the NOx catalyst bed along with the sparge air. The catalyst beds are sized for 99% removal efficiency of NH3 and 98% removal efficiency of NOx. The expected emissions based on the current process design are: ammonia 0.2 lb/hr, NOx less than 0.6 lb/hr and CO 0.9 lb/hr.

The treatment system is expected to be run continuously and will be shut down for preventative maintenance, other maintenance work or malfunction. The system will be shut down for routine maintenance for four hours each month and twelve hours for annual maintenance. No air emissions will be generated when the system is shut down. Air temperature, air flow, and air pressure will be monitored to ensure that the system is operating properly. Pressure interlocks will be used to monitor the health of the catalyst. If the monitored pressure exceeds the manufacturer's recommendations, the system will be shut down and the catalyst replaced. In addition to the routine monitoring, the catalyst will be sampled and analyzed annually.

3.0 **PSD Applicability:**

This facility is a minor source before and after this modification.

4.0 **History (In descending chronological order, showing NSR and TV):** *The asterisk denotes the current active NSR and Title V permits that are have not been superseded.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
325-M9-R19*	TBD	Technical Permit Revision	Installation and operation of an ammonia treatment system.
325-M9-R18	11/21/08	Administrative Revision	Administrative permit revision to retire the North Energy Center 500 HP boilers (Units ecs-boi-91, ecs-boi-92, ecs-boi-93, ecs-boi-94) and making revisions to pertinent sections of the permit to reflect the removal of the boilers. Condition 2.C.i will be deleted. Conditions 7.B.ii and 7.B.iv will be revised and condition 7.B.iii will be deleted. All references to the North Energy Center 500 HP boilers in Table 1, Attachment A and Table CS will be deleted.
325-M9-R17	9/12/08	Administrative Revision	Administrative permit revision to correct a typographical error that left out the emission factor of 0.0017 for Methanol (gensolve) for process H in Table 3, Emission Factors for HAPs.
325-M9-R16	4/18/08	Technical Permit Revision	RTO Emission Factors-A revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas. Natural Gas Fired Boilers emission factors - As required by Condition 2.C.ii.f, Intel submitted the required data for the twelve (12) 1250 BHP natural gas fired boilers. The test results and calculations support a change to the emission factor for CO. HAP & VOC emission factors - Pursuant to Condition 1.G this

Permit Number	Issue Date	Action Type	Description of Action (Changes)
			<p>application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. Changes were made to existing HAPs and VOCs emission factors and also VOC emission factors for chemicals for which chemical-specific factors are not specified in the permit and that previously used an emission factor of one (1) were added.</p> <p>Attachment A <i>Air Emission Sources</i> was modified to incorporate new designations for sources and stacks.</p> <p>Table CS <i>Hourly Emission Limits for Combustion Sources</i> was revised to reflect the new designations for sources and stacks in Attachment A.</p> <p>Permit language was revised to accurately reflect the information that needs to be reported and clarify that the information is not being reported under 20.2.7 NMAC.</p>
325-M9-R15	1/8/08	Technical Permit Revision	Replace all five thermal oxidizer units and relocate the new units to a central location west of the Central Utilities Building. The existing Durr thermal oxidizers will be replaced with similar equipment manufactured by the Munters Corporation-Zeol Division.
325-M9-R14	4/17/07	Technical Permit Revision	<p>A revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas.</p> <p>As required by Condition 2.C.ii.f, Intel submitted the required data for the twelve (12) 1250 BHP natural gas fired boilers. The test results and calculations support no change to the emission factors. The required boiler test data is from the preceding three (3) calendar years (2004-2006).</p> <p>Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. Changes were made to existing HAPs and VOCs emission factors and also VOC emission factors for chemicals for which chemical-specific factors are not specified in the permit and that previously used an emission factor of one (1) were added. Pursuant to Condition 1.G of Intel's Air Quality Permit No. 325-M9, these revisions to Tables Z and 3 are allowed.</p>
325-M9-R13	4/13/06	Technical Permit Revision	<p>A revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas.</p> <p>As required by Condition 2.C.ii.f, Intel submitted the required data for the twelve (12) 1250 BHP natural gas fired boilers. The test results and calculations support no change to the emission factors. The required boiler test data is from the preceding three (3) calendar years (2003-2005).</p> <p>Pursuant to Condition 1.G this application requested a revision of the emission factors (EFs) (Tables Z and 3) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions. Changes were made to existing HAPs and RTOs and an additional process (Process F) was added with this revision that uses existing chemicals previously identified in Table 3 of Intel's Air Quality Permit No. 325-M9. In addition, a new HAP (Bromoform) was</p>

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			added to Table 3 of Intel's Air Quality Permit No. 325-M9 this HAP was identified in the the CUB\NEC cooling tower test results and is formed by the use of sodium bromide used as a sterilization chemical for the cooling tower water. The addition of this HAP will trigger Conditions 5.D., 5.E.iii and 5.E.iv. and is subject to the PSEL for HAPs.
325-M9-R12	5/6/05	Technical Permit Revision	Revision of the thermal oxidizer (RTO) emission factors (EFs) used to calculate the facility's NOx and CO emissions from the combustion of natural gas and to identify separate emission factors for the two sizes (4 MMBtu/hr and 2.5 MMBtu/hr) of RTOs at the facility (Table 1). Submitted data to support no change in the emission factors for the twelve (12) 1250 BHP natural gas fired boilers. Revision of the emission factors (EFs) used to calculate the facility's Hazardous Air Pollutant (HAP) and VOC emissions (Tables Z and 3). Changed the process used to derive those factors (by process EF's). Changed the thermal oxidizer removal efficiencies for VOC (non-methanol) and Methanol and changed the scrubbers' removal efficiency for HF.
325-M9-R11	4/13/04	Technical Permit Revision	Changed the NOx emission factor for the 1250 BHP Boilers in Table 1 from 0.05 lb/MMBtu to 0.04 lb/MMBtu.
325-M9-R10	4/25/03	Administrative Revision	Corrected two typographical errors related to 1,2-dichloroethylene in Table 3 of the permit.
325-M9-R9	3/12/03	Technical Permit Revision	Changed the NOx and CO emission factors for the 1250 BHP Boilers in Table 1 as follows: CO: From 0.07 lb/MMBtu to 0.01 lb/MMBtu; NOx: From 0.06 lb/MMBtu to 0.05 lb/MMBtu.
325-M9-R8	9/6/02	Technical Permit Revision	The revision updated Table 3 of the permit (Emission Factors for HAPs) and Table Z of the permit (Emission Factors for VOCs). The update consisted of modification of some factors and addition of new factors for some chemicals not previously listed.
325-M9-R7	3/12/02	Technical Permit Revision	The revision changed the CO emission factor for the 1250 BHP Boilers in Table 1 as follows: CO: From 0.10 lb/MMBtu to 0.07 lb/MMBtu.
325-M9-R6	10/11/01	Administrative Permit Revision	The revision consisted of the following: Relocating and installing eight previously approved scrubbers to service the Fab11X area. Relocating and installing two previously approved thermal oxidizers to service the Fab11X area. Increasing the maximum flow of the Fab9 thermal oxidizer from 50,000 cfm to 54,000 cfm. Increasing the stack height of the Fab11N scrubber by seven feet to meet EPA Method 1 sampling requirements.
325-M9-R5	5/16/01	Administrative Permit Revision	The revision consisted of adding 4 additional emergency generators (exempt) to Fab11.
325-M9-R4	3/6/01	Technical Permit Revision	Change the following: Emission factors for the 1250 BHP Boilers in Table 1 were changed: NOx: From 0.0567 lb/MMBtu to 0.06 lb/MMBtu;

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			From 0.0908 lb/MMBtu to 0.10 lb/MMBtu. Condition 1.G of the permit was modified to read, "Intel shall make any increase or decrease in an emission factor listed in Tables 1, 3, Y, or Z of Permit No. 325M9 through the technical permit revision process in 20 NMAC 2.72.219."
325-M9-R2 325-M9-R3	12/14/00	Administrative Permit Revisions	The revisions consisted of re-designating 2 acid gas scrubbers and relocating 2 other acid gas scrubbers.
325-M9-R1	9/25/00	Administrative Permit Revision	The revision consisted of adding 1 additional emergency generator (exempt) to Fab9.
325-M9	3/3/00	NSR Permit	The permit allows for flexibility in the operation of the facility under Plantwide Site Emission Limits (PSELs). Certain conditions of the permit allow or require technical or administrative permit revisions as part of the flexible permit

- 5.0 **Public Response/Concerns:** As of January 14, 2009, no public comments have been received. A copy of the technical permit request package was sent to the distribution. A public notice for the meeting was run as a legal notice in the Albuquerque Journal Classifieds on Sunday, January 4, 2009. The public notice was also sent to the citizen distribution. A public open house will be held on January 22, 2009 at the Corrales Community Center in the Municipal Complex on Corrales Road in Corrales, NM from 7:00-9:30 PM. Trais Kliphuis-Sommer, Eric Peters and Jay Stimmel will represent the Bureau at the open house.

6.0 **Compliance Testing:**

Unit No.	Compliance Test	Test Dates
1	EPA Methods Test NO _x , CO and NH ₃	Initial

7.0 **Startup and Shutdown:**

- A. Was a Startup, Shutdown, and Malfunction Plan (SSM) submitted: No.
B. Were emissions from startup, shutdown, and scheduled maintenance operations calculated and included in the emission limits? No.

8.0 **Compliance and Enforcement Status [Title V only]:** NA

- 9.0 **Modeling:** Modeling has been submitted for this technical permit revision and is currently being evaluated.

10.0 State Regulatory Analysis(NMAC/AQCR):

20 NMAC	Title	Applies (Y/N)	Comments
2.3	Ambient Air Quality Standards	Y	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. 20.2.3.9 NMAC, LIMITATION OF APPLICABILITY TO 20.2.70 NMAC. The requirements of this part are not applicable requirements under 20.2.70 NMAC, as defined by that part. This section does not limit the applicability of this part to sources required to obtain a permit under 20.2.72 NMAC, nor does it limit which terms and conditions of permits issued pursuant to 20.2.72 NMAC are applicable requirements for permits issued pursuant to 20.2.70 NMAC.
2.7	Excess Emissions	Y	Applies to all facilities' sources
2.61	Smoke and Visible Emissions	Y	Stationary Combustion Equipment.
2.70	Operating Permits	N	PTE is not > 100 TPY, Source is not major for NOx, CO, VOCs, SO ₂ , Formaldehyde, and Total HAPs as defined at 20.2.70.200 NMAC.
2.71	Operating Permit Fees	N	Source is not subject to 20.2.70 NMAC as cited at 20.2.71.109 NMAC.
2.72	Construction Permits	Y	219.B.1.b
2.73	NOI & Emissions Inventory Requirements	Y	Applicable to all facilities that require a permit.
2.74	Permits-Prevention of Significant Deterioration	N	Source is not one of the 28 listed – PTE < 250 tpy
2.75	Construction Permit Fees	Y	This facility is subject to 20.2.72 NMAC
2.77	New Source Performance	Y	Applies to any stationary source constructing or modifying and which is subject to the requirements of 40 CFR Part 60, as amended through November 30, 2006 and 40 CFR 60 Subpart Dc applies.
2.78	Emissions Standards for HAPs,	N	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 61. This facility emits <25 tpy total HAPS.
2.79	Permits B Nonattainment Areas	N	This facility is not located in a non-attainment area. Non-attainment Link
2.82	MACT Standards for Source Categories of HAPs.	N	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63. This facility emits <25 tpy total HAPS.

11.0 Federal Regulatory Analysis:

Air Programs Subchapter C (40 CFR 50)	National Primary and Secondary Ambient Air Quality Standards	Applies (Y/N)	Comments
C	Federal Ambient Air Quality Standards	Y	Any national ambient air quality standard.

NSPS Subpart (40 CFR 60)	Title	Applies (Y/N)	Comments
A	General Provisions	Y	Applies if any other subpart applies and subpart Dc applies
40 CFR60.40a, Subpart Dc	Standards of Performance for Small Industrial- Commercial-Institutional Steam Generating Units	Y	This regulation applies because the 1250 BHP boilers are each rated between 10 MMBtu/hr and 100 MM Btu/hr as specified at 40 CFR 60.40c(a). Per 40 CFR 60.42c(d), the fuel oil burned in subject units may not contain more than 0.5% sulfur by weight.

NESHAP Subpart (40 CFR 61)	Title	Applies (Y/N)	Comments
A	General Provisions	N	Applies if any other subpart applies and no subparts apply.

MACT Subpart (40 CFR 63)	Title	Applies (Y/N)	Comments
A	General Provisions	N	Applies if any other subpart applies and no subparts apply.

- 12.0 Exempt and/or Insignificant Equipment that do not require monitoring:
No NSR exempt equipment in the permit.

- 13.0 New/Modified/Unique Conditions :
Specific Condition 2.C.i will be added to read: Ammonia Treatment Plant.
Note: Specific Condition 2.C.i was deleted in 325-M9-R18.

Specific Condition 2.C.i.a will be added to read: The ammonia treatment plant shall combust only natural gas (see condition 2.C.v.).

Specific Condition 2.C.i.b will be added to read:
Intel shall operate the ammonia treatment plant in accordance with manufacturer's specifications. At all times the ammonia treatment plant is in operation, except during startup and cooldown periods, Intel shall maintain the temperature unit at a minimum of 550°F, and a single hour average of at least 572°F, plus or minus 22°F. Intel shall continuously record the temperatures using a continuous strip chart recorder or electronic equivalent. At any time the continuous recording mechanism is not operating, Intel shall

record the temperatures not less than once per hour during the time the control unit is operating.

Specific Condition 7.E will be added to read: Ammonia Treatment Plant.

Specific Condition 7.E.i will be added to read: Intel shall conduct initial compliance testing for NO_x and CO in accordance with 20.2.72.213 NMAC.

Specific Condition 7.E.ii will be added to read: Intel shall conduct initial compliance testing for NH₃.

Specific Conditions 8.B.v., 8.B.vi. and 8.B.vii. will be renumbered as 8.B.vi., 8.B.vii. and 8.B.viii., respectively.

Specific Condition 8.B.v. will be added to read: Ammonia Treatment Plant.

Specific Condition 8.B.v.a. will be added to read: maintenance and operational logs for the ammonia treatment plant;

Specific Condition 8.B.v.b. will be added to read: air temperature, air flow, and air pressure;

Specific Condition 8.B.v.c. will be added to read: results of the annual sampling of the catalytic material conducted per manufacturer's recommendations; and

Specific Condition 8.B.v.d. will be added to read: natural gas fuel flow and fuel heat content for each oxidizer.

Specific Condition 9.A.iii.c. will be modified to read: the fuel usage in scf for the ammonia treatment system, each boiler and RTO, and the heat content of the natural gas in units of btu/scf.

Specific Condition 9.A.iii.g. will be modified to read: the average total potential emissions of TAPs in pounds per hour calculated for the quarter based on usage or the equation specified in Condition 6.B;

Attachment A *Air Emission Sources* will be modified to incorporate the source and stack designations for the ammonia treatment system.

Table CS *Hourly Emission Limits for Combustion Sources* will be revised to add the following information for the ammonia treatment system: source and stack designations, fuel and the hourly emission limits of TSP/PM₁₀ 0.05 lb/hr, SO₂ 0.002 lb/hr, NO_x 1.0 lb/hr and CO 1.0 lb/hr.

14.0 **For Title V action: Cross Reference Table between NSR Permit 0325 and TV Permit: NA**

15.0 **Permit specialist's notes to other NSR or Title V permitting staff concerning changes and updates to permit conditions.**

15.1 None

Draft

